Stat 185 - In class problems
Wednesday, November 1

1. In this problem, we'll play with the t-distribution with 12 degrees of freedom. Suppose that X is a random variable with that distribution.

   (a) Use R to compute $P(X > 1.5)$. (I guess this is called a P-value in your HW.)

   (b) Use R to compute $P(|X| < 2)$.

   (c) Use our t-distribution table to find a one-sided t^* value for a 99% level of confidence.

   (d) Use R to verify your answer to the last problem.

   (e) Use R to find a one-sided t^* value for a 99.9% level of confidence.

2. Suppose we wish to estimate the average height of NC college students. We'd like a 99% confidence interval with a margin of error half an inch. Pilot studies indicate that the standard deviation in random samples is approximately 3.7 inches. How large a sample size do we need?

3. McDonald's claims that a Big Mac has 560 calories. Of course, we suspect that it might be more. A sample of 15 Big Macs found an average of 565.88 calories with a standard deviation of 10.38.

   (a) Write down the hypothesis test.

   (b) Compute the test statistic.

   (c) Find the corresponding p-value.

   (d) What is the conclusion of the test?